LINKSYS®

A Division of Cisco Systems, Inc.

2.4 GHz
802.11g

Wireless-G

Presentation Player

WIRELESS

User Guide

CISCO SYSTEMS

Model No. **WPG54G**

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How to Use this Guide

Your guide to the Wireless-G Presentation Player has been designed to make understanding networking with the Presentation Player easier than ever. Look for the following items when reading this guide:

This checkmark means there is a note of interest and is something you should pay special attention to while using the Presentation Player.

This exclamation point means there is a caution or warning and is something that could damage your property or the Presentation Player.

This question mark provides you with a reminder about something you might need to do while using the Presentation Player.

In addition to these symbols, there are definitions for technical terms that are presented like this:

word: *definition.*

Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this:

Figure 0-1: Sample Figure Description

Figure numbers and descriptions can also be found in the "List of Figures" section in the "Table of Contents".

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Table of Contents

List of Figures

Chapter 1: Introduction

Welcome

Thank you for choosing the Wireless-G Presentation Player. This Presentation Player will allow you to play your presentations wirelessly better than ever.

The versatile Linksys Wireless-G Presentation Player is the ultimate presentation tool. In the conference room, it can act as a 54Mbps access point to your network, and also connects via a standard VGA connector to your projector or monitor. Any wireless-equipped computer within range (and with permission) can take control of the Player and project live screen images of any application running on the PC. Give presentations, review the numbers in your spreadsheets, and collaboratively edit documents at up to 1024x768 resolution and 24-bit color.

For truly interactive meetings and brainstorming sessions, the Player allows any member of the wired or wireless network group to take instant control of the projector, with no cable-swapping hassle. Go around the room for status reports, or let the inspiration flow in an ad-hoc idea exchange. In a classroom setting, the Player allows a teacher to unobtrusively supervise each students' progress without physically peeking over their shoulders.

The Wireless-G Presentation Player can also act as a stand-alone presentation device. Using the included utility, upload your PowerPoint® presentations directly into the Player's 32 megabyte non-volatile memory or to your own USB Memory Disk. Then leave your PC at home! Take the Player to the boardroom or your customer's site, plug it into a projector or monitor, and run your presentation directly from the Player using the included infrared wireless remote. It even includes a built-in laser pointer to help you hit the highlights.

As a wireless interactive meeting facilitator or as a stand-alone presentation tool, the Linksys Wireless-G Presentation Player helps you get your point across.

What's in this Guide?

This user guide covers the steps for setting up and using theWireless-G Presentation Player.

- **Chapter 1: Introduction**
  This chapter describes the Wireless-G Presentation Player's applications and this User Guide.

- **Chapter 2: Planning Your Wireless Network**
  This chapter discusses a few of the basics about wireless networking.

- **Chapter 3: Getting to Know theWireless-G Presentation Player**
  This chapter describes the physical features of the Wireless-G Presentation Player.

- **Chapter 4: Connecting the Presentation Player**
  This chapter shows you how to connect the Wireless-G Presentation Player to your network.

- **Chapter 5: Installing the Presentation Player's Setup Utility**
  This chapter instructs you on how to set up the Wireless-G Presentation Player wih the Setup Utility.

- **Chapter 6: Configuring the Presentation Player with the Web-Based Utility**
  This chapter show you how to use the Wireless-G Presentation Player's web-based utility to configure it.

- **Chapter 7: The Control Utility**
  This chapter describes how to upload a presentation using the control utility.

- **Chapter 8: Using the Remote Display Presentation Utility**
  This chapter describes how to use the Player to give a presentation without an attached PC.

- **Chapter 9: Using the USB Memory Disk**
  This chapter describes how to install a presentation on the Player using a USB memory disk device.

- **Appendix A: Troubleshooting**
  This appendix describes some potential problems and solutions, as well as frequently asked questions, regarding installation and use of the Wireless-G Presentation Player.

- **Appendix B: Wireless Security**
  This appendix discusses security issues regarding wireless networking and measures you can take to help protect your wireless network.

- **Appendix C: Upgrading Firmware**
  This appendix provides instructions for how to upgrade the firmware.

- **Appendix D: Windows Help**
  This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol.

- **Appendix E: Glossary**
  This appendix gives a brief glossary of terms frequently used in networking.

- **Appendix F: Specifications**
  This appendix provides the Wireless-G Presentation Player's technical specifications.

- **Appendix G: Warranty Information**
  This appendix supplies the Wireless-G Presentation Player's warranty information.

- **Appendix H: Regulatory Information**
  This appendix supplies the Wireless-G Presentation Player's regulatory information.

- **Appendix I: Contact Information**
  This appendix provides contact information for a variety of Linksys resources, including Technical Support.

Chapter 2: Planning your Wireless Network

Network Topology

A wireless network is a group of computers, each equipped with one wireless adapter. Computers in a wireless network must be configured to share the same radio channel. Several PCs equipped with wireless cards or adapters can communicate with one another to form an ad-hoc network.

Linksys wireless adapters also provide users access to a wired network when using an access point or wireless router. An integrated wireless and wired network is called an infrastructure network. Each wireless PC in an infrastructure network can talk to any computer in a wired network infrastructure via the access point or wireless router.

An infrastructure configuration extends the accessibility of a wireless PC to a wired network, and can double the effective wireless transmission range for two wireless adapter PCs. Since an access point is able to forward data within a network, the effective transmission range in an infrastructure network can be doubled.

Roaming

Infrastructure mode also supports roaming capabilities for mobile users. Roaming means that you can move your wireless PC within your network and the access points will pick up the wireless PC's signal, providing that they both share the same channel and SSID.

Before enabling you consider roaming, choose a feasible radio channel and optimum access point position. Proper access point positioning combined with a clear radio signal will greatly enhance performance.

ad-hoc: *a group of wireless devices communicating directly with each other (peer-to-peer) without the use of an access point.*

infrastructure: *a wireless network that is bridged to a wired network via an access point.*

Network Layout

Linksys wireless access points and wireless routers have been designed for use with 802.11a, 802.11b, and 802.11g products. With 802.11g products communicating with the 802.11b standard and some products incorporating both "a" and "g", products using these standards can communicate with each other.

Access points and wireless routers are compatible with 802.11a, 802.11b and 802.11g adapters, such at the PC Cards for your laptop computers, PCI Card for your desktop PC, and USB Adapters for when you want to enjoy USB connectivity. Wireless products will also communicate with the wireless PrintServer.

When you wish to connect your wired network with your wireless network, network ports on access points and wireless routers can be connected to any of Linksys's switches or routers.

With these, and many other, Linksys products, your networking options are limitless. Go to the Linksys website at www.linksys.com for more information about wireless products.

Chapter 3: Getting to Know the Presentation Player

Overview

This chapter describes what is on the back and front panels of the Presentation Player, and the remote control.

The Back Panel

The Presentation Player's ports, where a network cable is connected, and the reset button are located on the back panel. See Figure 3-1.

USB   The **USB port** is where you will connect the USB memory disk device.

Monitor/Projector   The **Monitor/Projector** port is where you will connect the VGA cable from the monitor or projector where your presentation will be displayed.

LAN   This **LAN** (Local Area Network) port connects to Ethernet network devices, such as a switch or router.

Power   The **Power** port is where you will connect the power adapter.

Reset Button   There are two ways to reset the Presentation Player's factory defaults. Either press the **Reset Button**, for approximately ten seconds, or restore the defaults from the Administration tab in the Presentation Player's Web-based Utility.

With these, and many other, Linksys products, your networking options are limitless. Go to the Linksys website at www.linksys.com for more information about products that work with the Presentation Player.

⚠ **Important:** Resetting the Presentation Player will erase all of your settings (WEP Encryption, Wireless and LAN settings, etc.) and replace them with the factory default settings. Do not reset the Presentation Player if you want to retain these settings.

Figure 3-1: Back Panel

The Front Panel

The Presentation Player's LEDs, where information about network activity is displayed, the infrared sensor, and the power switch are located on the front panel.

LEDs

Power   Green. The **Power** LED lights up when the Presentation Player is powered on.

Wireless-G   Green. The **Wireless-G** LED lights whenever there is a successful wireless connection. If the **Wireless-G** LED is flickering, the Presentation Player is actively sending or receiving data to or from one of the devices on the network.

LAN   Green. The **LAN** LED serves two purposes. If the LED is continuously lit, the Presentation Player is successfully connected to a device through the LAN port. If the LED is flickering, it is an indication of any network activity.

USB   Green. The **USB** LED lights whenever there is a successful USB connection.

Infrared   The infrared sensor is where you point the remote control of the Presentation Player.

Power Switch   The **Power** Switch is where you will turn the Presentation Player on and off.

Infrared
Sensor

On/Off
Button
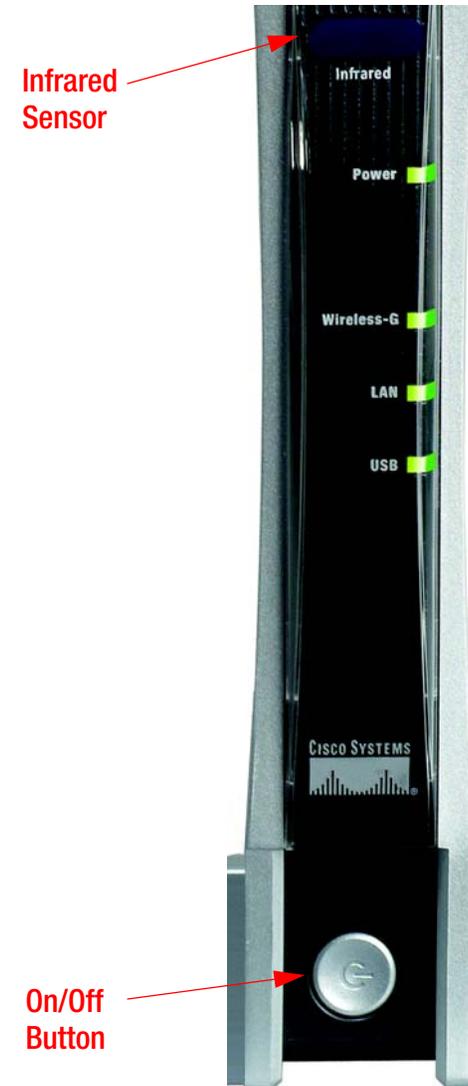
Figure 3-2: Front Panel

Remote Control

Stop	Use to stop your presentation or connection.
Play	Use to start your presentation from the Presentation List.
Pointer	Use for the laser pointer.
Connect	Use to connect a new user to the Player while in the Presentation List.
List	Takes you to the Presentation List.
Home	Takes you to the Home page.
Info	Shows the system information for the Player: the identification, network settings, and wireless LAN configuration.
User	Shows a list of the connected remote users by using the names of their computers.
Back	Goes back to the previous slide.
Center Round Button	Use like a mouse pad to move the cursor on the screen.
Left and Right Buttons	Use like you would use left and right mouse buttons. Also acts as Next and Previous slide buttons when in the Presentation List.
Delete	Use to delete your presentation from the Player.
Left and Right Arrows	Use to navigate left and right when in the Presentation List.
Up and Down Arrows	Use to navigate up and down.
Mode	Toggles between high and low resolutions.

Figure 3-3: Remote Control

Chapter 4: Connecting the Presentation Player

Overview

This chapter explains how to connect the necessary cables to use the Player, and how to attach the stand if you wish to use it.

Hardware Installation

1. Connect the VGA cable from your monitor or projector to the Presentation Player's Monitor/Projector port.

Figure 4-1: Monitor/Projector Connection

2. Make sure that the Presentation Player is turned off. Plug the supplied power adapter into the Power port on the Presentation Player's back panel. Then, plug the other end into a power outlet (surge protection recommended). Turn on the Presentation Player.

> ⚠️ **IMPORTANT:** Make sure to only use the power adapter that is supplied with the Presentation Player. Use of a different adapter can damage the product.

Figure 4-2: Power Connection

3. To have a wired connection, connect one end of the Category 5 Ethernet network cable to your PC's Ethernet adapter. Connect the other end to the Ethernet port on the back of the Presentation Player.

4. For a wireless connection, fix the direction of the antenna. Place the antenna perpendicular to the ground.

5. Place the Player near the monitor or projector facing the presenters so that the infra red in the remote control will be in line of sight to the Player.

Figure 4-3: LAN Connection

Placement Options

There are two ways to place the Player. You can place the Player horizontally on a surface, as shown in Figure 6-1. (If necessary, adjust the antenna so that it points straight up in the air.) The second way is to stand the Player vertically on a surface. If you want to install the stand, refer to the instructions below.

Installing the Stand for Vertical Placement

1. The Player includes four triangular stands. The Player has eight rubber inserts, four on each side.

2. Remove the two rubber inserts that are adjacent to the power port. Insert a stand into an opening, then push it up to snap it into place. Then, insert a stand into the other opening, and push it up to snap it into place.

3. Repeat step 2 for the LED side of the Player.

4. Place the Player in an appropriate location.

5. If necessary, adjust the antenna so that it points straight up in the air. (See Figure 6-2.)

Figure 4-4: Horizontal Placement

Power Port

Stand

Rubber Insert
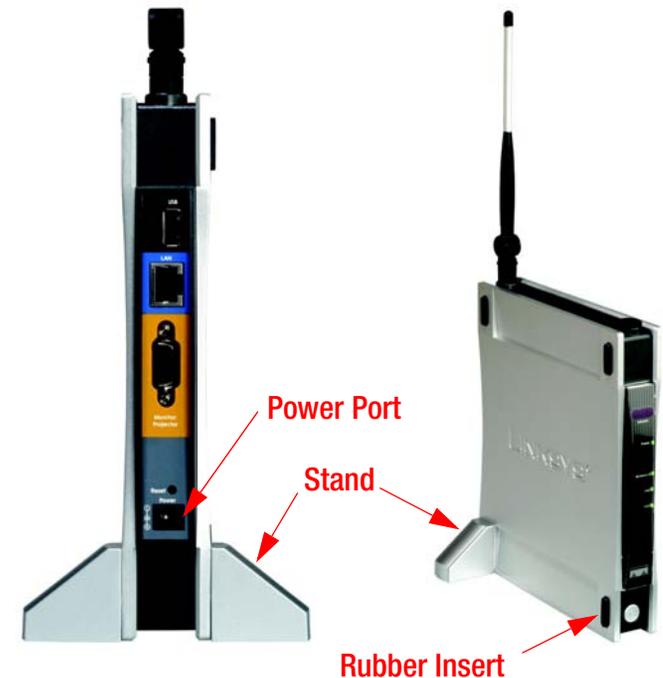
Figure 4-5: Vertical Placement

Chapter 5: Setting up the Presentation Player

Installation

The Presentation Player can play from any PC in your wireless network, but you will first need to install this utility in each PC that will be used with the Presentation Player – once installed, it will not need to be done again.

1. Insert the Setup CD-ROM into your CD-ROM drive. The CD's Wizard should start automatically and the Welcome page for the Setup Utility will appear (as shown in Figure 5-1).

    If it does not start automatically, click the **Start** button, select **Run**, and enter **d:\setup.exe** (where "d" is the letter of your CD-ROM drive) in the *Open* field to start the autorun program.

    On the Welcome page, click the **Setup** tab to start the installation procedure and place the Control Utility on your current PC.

    Click the **User Guide** tab to use this User Guide. Click the **Exit** tab to close the Setup Utility.

2. A screen like that shown in Figure 5-2 will appear.

    Read the license agreement and click the **Yes** tab to accept the terms and continue the installation procedure. If you click **No**, you will end the installation procedure.

Figure 5-1: Welcome

Figure 5-2: Software License Agreement

3. The next screen, like that shown in Figure 5-3, will allow you to choose where the Setup Utility will install the Control Utility and the Presentation Converter. By default, the destination folder is C:\Program Files\Linksys\Wireless-G Presentation Player.

    If you want to change the location, click the **Browse** tab and select another destination for the installation.

    Click the **Next** tab to continue. Click the **Back** button to return to the previous screen. Click the **Exit** tab if you want to end the Setup Utility.

4. The wizard will now be ready to begin copying the program files. Review the screen shown in Figure 5-4.

    Click the **Exit** tab if you want to end the Setup Utility.
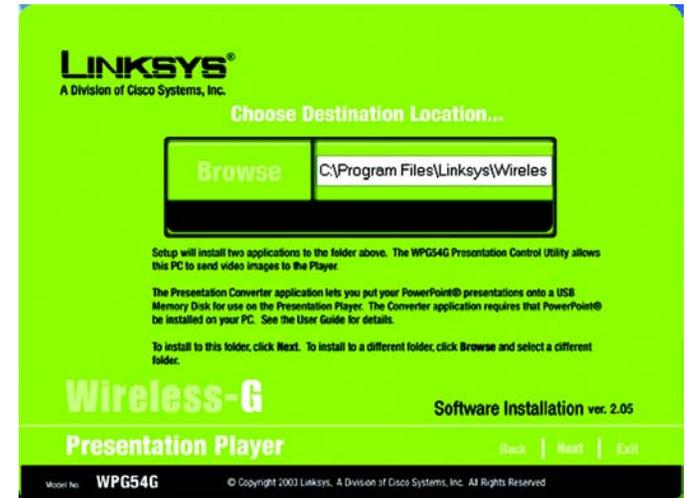
Figure 5-3: Destination Location
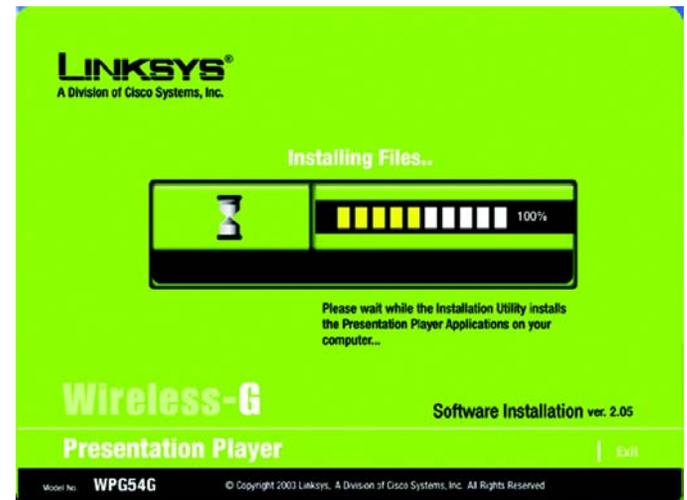
Figure 5-4: Installing Files

5. When you see this screen, the installation of the Setup Utility onto your computer has been completed.

    Click the **Exit** tab to exit the Setup Utility now or click the **Online Registration** tab to register your product online.

Figure 5-5: Congratulations

Chapter 6: Configuring the Presentation Player with the Web-Based Utility

Overview

The Presentation Player has been designed to function with the default settings in the Setup Utility. However, if you'd like to change these settings, the Presentation Player can be configured through your web browser with the Web-Based Utility. This chapter explains how to configure the Presentation Player. The Utility contains these four tabs: Setup, administration, Status, and Help.

How to Access the Web-based Utility

To access the Web-based Utility, you will need the Presentation Player's IP Address. To find the Player's IP Address, make sure that the Presentation Player is connected to the projector or monitor and that both devices are powered on. Open your web browser and enter the Player's IP Address in the *Address* field. The default IP Address is 192.168.1.200. Press the Enter key.

A password request screen, shown in Figure 6-1, will appear. The first time you open the Web-Based Utility, enter the default password **admin** into the Password field. Click the **OK** button. You can later set a new password using the Administration tab, as shown in Figure 6-4.

The Setup Tab

The Setup tab, as shown in Figure 6-2, has your available basic setup functions. Most users can use the default settings, but you can change them here if you want. Your network and wireless security functions are located here.

Firmware Version - This field displays the current firmware version of the Presentation Player. Firmware upgrades, when available, may be downloaded from the Linksys web site at no charge. If you are not experiencing any problems with the Presentation Player, you should not upgrade the firmware. Make sure to review the release notes of any firmware version before attempting an upgrade.

Player Name - This is a common name that you assign to the Presentation Player. This field is limited to 32 characters. By default, four alphanumeric characters follow the device name. These represent the last four characters of the Presentation Player's MAC (Ethernet) address. The MAC address is printed on the bottom of the
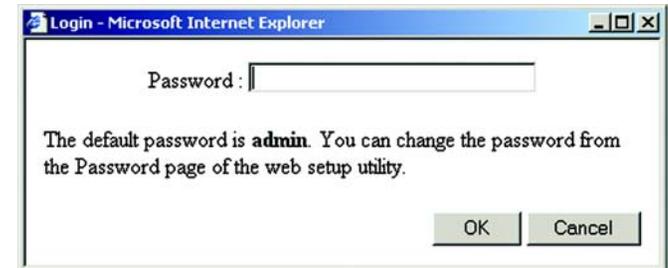
Figure 6-1: Password Screen

Note: The Presentation Player is designed to function properly after using the Setup Wizard. This chapter is provided for those who wish to perform more advanced configuration or monitoring.

firmware: the programming code that runs a networking device

MAC (Media Access Control) Address:the unique address that a manufacturer assigns to each networking device

Presentation Player. Assigning unique and memorable names is helpful, especially if you are using multiple Presentation devices on the same network.

Network Settings

- MAC Address. The MAC Address of the wired (LAN) network is displayed.

- IP Address Settings. This is the Internet Protocol Address that is assigned to the Presentation Player. Click **Obtain an IP** *Address Automatically* or *Set Static IP Manually*. Choose *Obtain an IP Address Automatically* to allow your Presentation Player to automatically obtain a dynamic IP address from a DHCP server. Or, choose *Set Static IP Manually* where you will assign all the devices a permanent IP Address and enter the fixed IP address in the fields provided. Then, enter the *Subnet Mask* into the fields provided. No DHCP changes will take effect until the Presentation Player has been powered down and powered up again. The IP Address will only be used to remotely configure or control the Presentation Player. You do not need to reconfigure it if you are traveling to remote locations and plan to use the hand-held remote control.

- DHCP Server Settings. If you are using a DHCP server, select **Enabled** from the drop-down menu. Enter the *Start IP Address* in the field. Then, enter the number of users in the field. The IP Address range will be displayed.

Wireless Settings

- MAC Address.The MAC Address of the wireless network is displayed.

- Mode. Choose your network mode from the drop-down menu. Select **Wireless-G**, **Wireless-B**, or **Mixed**.

- SSID. This stands for Service Set IDentifier. The SSID, also called the Network Name, is a unique name that identifies a wireless network. In order to connect to the Presentation Player, all of your wireless computer's settings must be identical to the SSID you define here. The SSID is case sensitive, must not exceed 30 characters, including WPG54G-, but may consist of any keyboard character. Make sure that this setting is the same for all wireless devices communicating with the Presentation Player. You should change the default SSID of "linksys" to a name that is unique to your network.

- Channel. Each Access Point and/or Presentation Player on your network should be assigned a unique channel. The channel is a common number that sets the actual frequency this particular device will use to communicate with wireless clients. For example, TV and Radio Stations refer to particular channels, which are actually frequencies at which radio waves are transmitted.

  If you experience poor performance, you may have interference from another wireless device. Changing the channel may eliminate interference and increase performance. Channels 1, 6 and 11 are preferred.
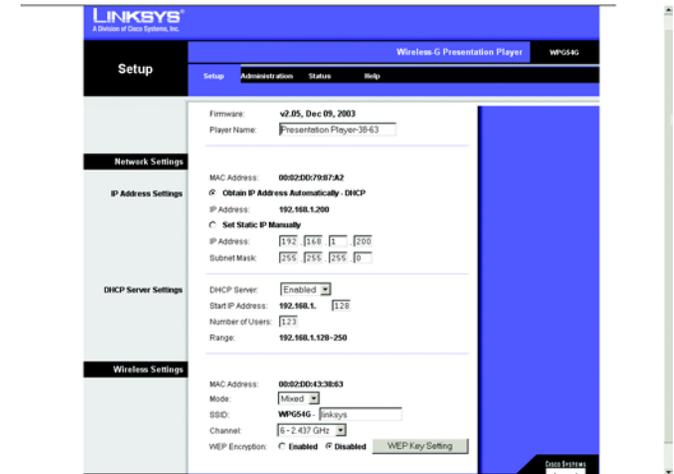

Figure 6-2: Setup Tab

static ip address: a fixed address assigned to a computer or device connected to a network

- WEP Encryption. Wired Equivalent Privacy (WEP) is an encryption method used to protect your wireless communications and prevent unauthorized access to the Presentation Player and/or your network.

  WEP uses 64-bit or 128-bit keys to provide access control to your network and encryption security for every data transmission. To decode data transmissions, all devices in a network must use an identical WEP key. Higher encryption levels offer higher levels of security, but due to the complexity of the encryption, they may decrease network performance. To enable WEP encryption, click the **Enabled** radio button. Then click the **WEP Key Setting** button to configure the WEP settings. To disable WEP encryption, keep the default setting, **Disabled**.

- Default Transmit Key. Select which WEP key (1-4) will be used when the Router sends data. Make sure the receiving device is using the same key.

- WEP Encryption. Select the level of WEP encryption you wish to use, **64-bit 10 hex digits** or **128-bit 26 hex digits**.

- Passphrase. Instead of manually entering WEP keys, you can enter a Passphrase. This Passphrase is used to generate one or more WEP keys. It is case-sensitive and should not be longer than 16 alphanumeric characters. (This Passphrase function is compatible with Linksys wireless products only. If you want to communicate with non-Linksys wireless products, enter the WEP key manually on the non-Linksys wireless products.) After you enter the Passphrase, click the **Generate** button to create WEP keys.

- Keys 1-4. WEP keys enable you to create an encryption scheme for wireless network transmissions. If you are not using a Passphrase, then manually enter a set of values. (Do not leave a key field blank, and do not enter all zeros, because they are invalid key values.)

  If you are using 64-bit WEP encryption, then the key must be exactly 10 hexadecimal characters in length. If you are using 128-bit WEP encryption, then the key must be exactly 26 hexadecimal characters in length. Valid hexadecimal characters are "0"-"9" and "A"-"F".

When finished making your changes on this tab, click the **Save Settings** button to save these changes, or click the **Cancel Changes** button to undo your changes.
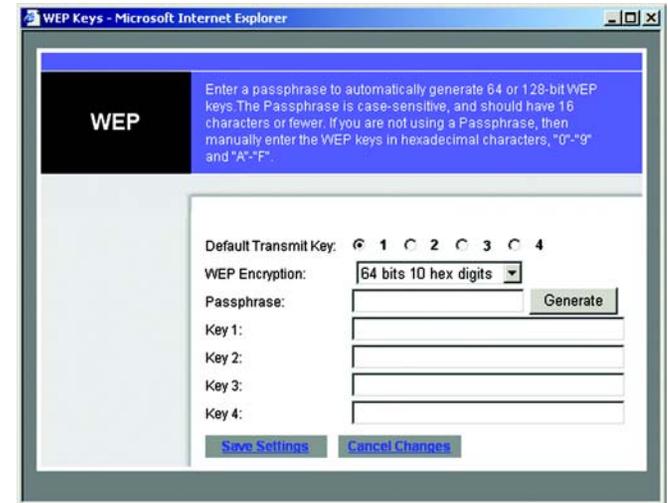
Figure 6-3: WEP Settings

The Administration Tab

The Administration tab, as shown in Figure 6-4, is where you change your password, restore the factory default settings, and upgrade the firmware for the Presentation Player.

Player Password

Choose an alphnumeric password between 4 and 16 characters and without spaces. Enter the password into the *Password* field, then repeat it in the *Re-type Password* field.

Restore Factory Defaults

If you need to clear all of the settings on the Presentation Player and restore them to the factory default settings, click the **Yes** button. Then, click the **Apply** button.

Firmware Upgrade

The current firmware version will be displayed.

New firmware versions are posted on the support page at the Linksys website and can be downloaded for free, but do not upgrade your firmware unless you are experiencing problems.

1. Download the firmware from Linksys's website at **www.linksys.com** and then extract it.

2. Enter the location of the firmware's file or click the **Browse** button to find the file.

3. Then, click the **Upgrade** button to upgrade the firmware, and follow the instructions there.
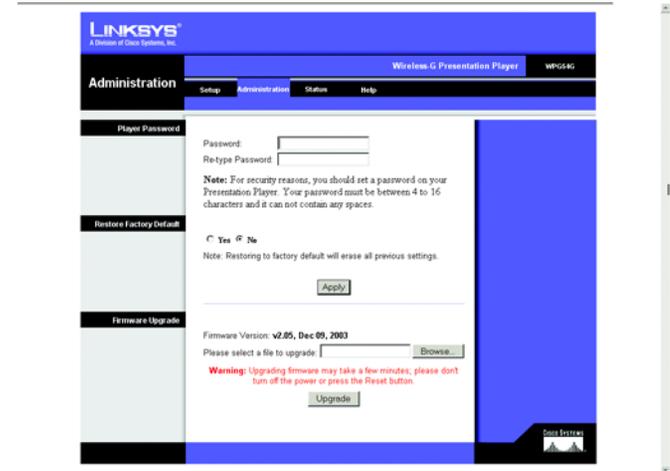
Figure 6-4: Administration Tab

IMPORTANT: Restoring the Presentation Player's factory default settings will erase all of your settings (WEP Encryption, Wireless and Network settings, etc.), and replace them with the factory defaults. Do not reset the Presentation Player if you want to retain these settings.

The Status Tab

The Status tab will display the Presentation Player's current network and wireless settings and activity, and statistics. It will list the Network Settings: Firmware, Player Name, MAC Address, IP Address, Subnet Mask; the Wireless Settings: MAC Address, SSID, Channel, and WEP Encryption; Statistics: Network Sent, Network Received entries display your network's performance levels.


Figure 6-5: Status Tab

The Help Tab

The Help tab (see Figure 6-6) has links to the Linksys Website, Linksys Product Support, then Online User Guide, and the Adobe Website to download PDF viewing software.
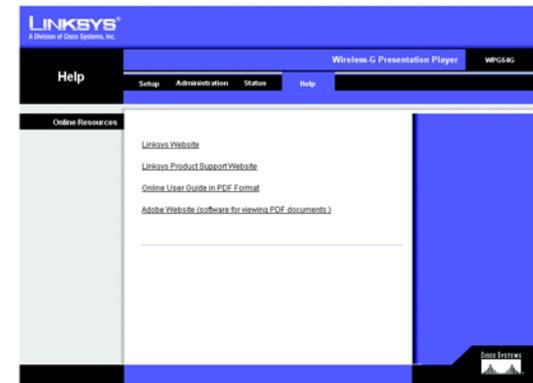
Figure 6-6: Help Tab

Chapter 7: The Control Utility

Using the Control Utility

The control utility may be used from any wired or wireless notebook or desktop PC with a connection to the Wireless Presentation Player. It is a good idea to place the Wireless Presentation Player on or near the monitor or projection area. The Infrared sensor is located on the front panel of the unit and the remote control must be in line-of-sight of the sensor in order to function properly.

Make sure that the Presentation Player is connected to the projector or monitor and that both devices are powered on. Click on the WPG54G Presentation Player icon on your desktop. (See Figure 7-1.)

1. The welcome screen will appear first. (See Figure 7-2.) Click **Next** to continue.

2. On the next screen, select the Presentation Player from the drop-down list. The Players are listed with the last four digits of their MAC Address. You may change the name of the Player on the Setup tab in the Web-based Utility in Chapter 6: Configuring the Presentation Player Using the Web-based Utility. Click **Next** to continue.

⚠ **IMPORTANT:** Make sure that your PC is connected to the Ethernet port of the Wireless-G Presentation Player if you are using a wired connection. Also, make sure that your PC is set to the same IP range as the Player.

⚠ **IMPORTANT:** Make sure that your wireless PC has the same SSID as the Wireless Presentation Player (default SSID is WPG54G-linksys, If you are using a wireless connection. Also, make sure that your PC is set to the same IP range as the Player.

Figure 7-1: Icon

Figure 7-2: Welcome

Figure 7-3: Presentation Player

3. When you see the screen shown in Figure 7-4, you will choose a color setting for your presentation. Select the default **True Color** to have the optimum color option. If the action is very slow or your presentation is mostly text, you may want to select **Basic Color**. You will still have color, but your speed will increase.

   Click the **Refresh** button.

4. Next, choose your presentation option from the following buttons at the bottom of the screen.

   • Upload Presentation. This option allows you to upload a PowerPoint presentation to the Presentation Player. Once uploaded, you can display the entire presentation using the hand-held remote control. While this feature allows great freedom and mobility, please consider the following when uploading a presentation to the Presentation Player:

   Once uploaded, anyone can use the remote control to view the presentation on a monitor, so take precautions if your presentation contains sensitive or confidential material.

   The PC attempting to upload a presentation must have Microsoft PowerPoint 97 or later installed.

   Some features, such as animation, hyperlinks, and sound will not be available once your presentation is uploaded.

   The Presentation Player comes with 32Mb of storage for your presentations. This allows enough room for several presentations. However, be sure to remove your presentations when they are no longer needed to make room for new files.

   • Take Control of the Presentation Player. This feature allows you to conveniently transfer the contents of your local PC screen to the projector or monitor that is connected to the Player where the presentation will be displayed. You may notice some delay in mouse and keyboard function. Such a delay is normal for this mode of operation. Only one user at a time can control the Presentation Player. The supported display resolutions are 800 x 600 or 1024 x 768. Please see your Windows documentation for more information on changing your display settings.

   • Give Control to Another User. To pause your presentation or change presenters, click this button.

   • Exit (Stop). To exit the Control utility, click this button.

5. If you click the *Upload Presentation* button, the screen in Figure 7-5 will appear. Click the **Browse** button to search for your Power Point presentation file.

Figure 7-4: Presentation Options

Figure 7-5: Upload a Presentation to the Player

The screen in Figure 7-6 will appear. After you find your presentation, select it, then click the **Open** button. After you click the Open button, your file will appear in the Browse field of Figure 7-5. Click **Upload**. Your file will be automatically converted and loaded onto the Presentation Player.
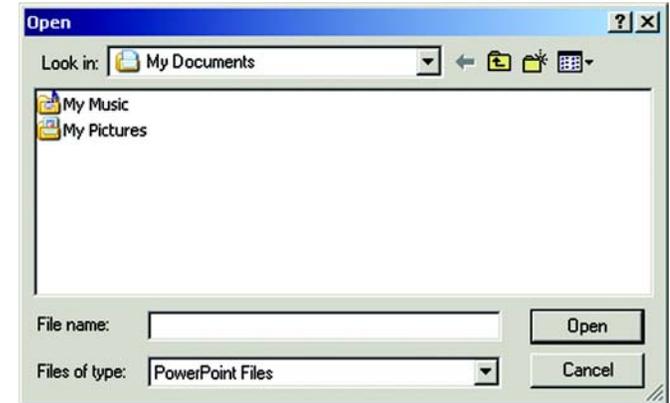
Figure 7-6: Browse for your File

Chapter 8: Using the Remote Display Presentation Utility

Remote Display

The Presentation Player has a built-in image viewer and internal storage, so you can give a presentation without an attached PC. All you need to do is load the presentation files onto the system in advance, then you can deliver a presentation using the remote control. The Player also has a the remote display function to switch users during a presentation.

1. To load your presentation, go to the Upload Presentation Section of Chapter 5: Using the Presentation Player's Web-Based Utility. To learn about the Remote Control, go to The Remote Control's Buttons in Chapter 2.

2. Make sure that the Presentation Player is connected to the projector or monitor and that both devices are powered on. The screen in Figure 8-1 will appear. It is referred to as the Home page. If you click on a screen's Home button, you will return here.

   The three buttons on this screen are described below and in the following paragraphs.

   Remote Users. Click this button to view and connect to the remote users. It will list the remote users whose PCs are connected to the Player. The screen in Figure 8-2 will appear. To use, select a user, then click **Connect** to connect the user to the network, click **Delete** to remove the user from the network, or if finished with the presentation and you want to disconnect everyone, click **Delete ALL.**

Figure 8-1: Welcome

Figure 8-2: Remote Users

Presentation List. Click this button to view the list of loaded presentations. The screen in Figure 8-3 will appear. To use, select a file, then click **Play** to play the file, click **Delete** to remove the file from the Player, or if finished with the presentation and you want to delete all of the loaded files, click **Delete ALL.**

System Info. Click this button to view the Player's identification, network settings, and wireless LAN configuration. (Figure 8-4)

Back. Click this button to go back to the previous screen.

Home. Click this button to go the the Home page.

Figure 8-3: Presentation List
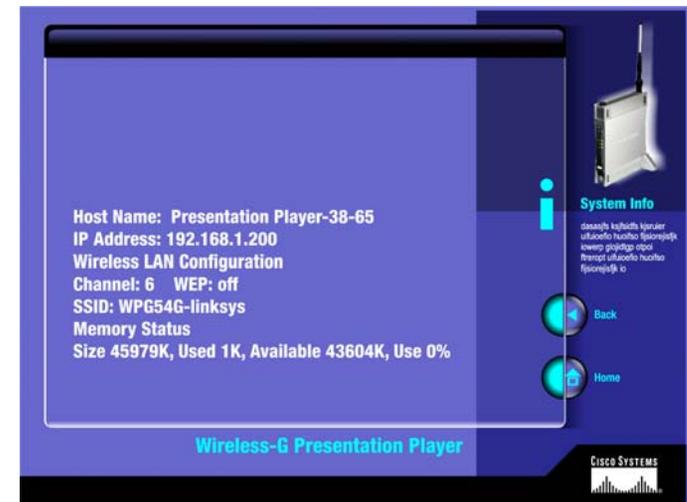
Figure 8-4: System Info

Chapter 9: Using a USB Memory Disk to Install Files

Overview

Before you can use a USB memory disk, you will need to convert your Power Point presentation file. To convert your file, you must first install the converter software on your PC. If you already installed the Setup Wizard on your PC, then you already have Presentation Converter installed. After you convert your file, the Presentation Player will be able to accept the presentation from your USB disk.

Installation

When you use a memory disk device to install your presentation on the Presentation Player, you must first install the converter software on your PC.

1. Insert the Setup CD-ROM into your CD-ROM drive. The CD's Wizard should start automatically and the Welcome page for the Setup Utility will appear (as shown in Figure 9-1).

   If it does not start automatically, click the **Start** button, select **Run**, and enter **d:\setup.exe** (where "d" is the letter of your CD-ROM drive) in the Open field to start the autorun program.

   On the Welcome page, click the **Install Presentation Converter for USB Memory Disk** tab to start the installation procedure and install the application on your current PC.

   Click the **User Guide** tab to use this User Guide. Click the **Exit** tab to close the Setup Utility.

2. Click the **Setup** tab and the Wizard will begin the installation procedure. A screen like that shown in Figure 9-2 will appear.

   Read the license agreement and click the **Yes** tab to accept the terms and continue the installation procedure. If you click **No**, you will end the installation procedure.

Figure 9-1: Welcome

Figure 9-2: Software License Agreement

3. The next screen, like that shown in Figure 9-3, will allow you to choose where the Setup Utility will install the Control Utility and the Presentation Converter. By default, the destination folder is C:\Program Files\Linksys\Wireless.

    If you want to change the location, click the **Browse** tab and select another destination for the installation. Click the **Next** tab to continue.

4. The Wizard will now be ready to begin copying the program files, as shown in Figure 9-4.
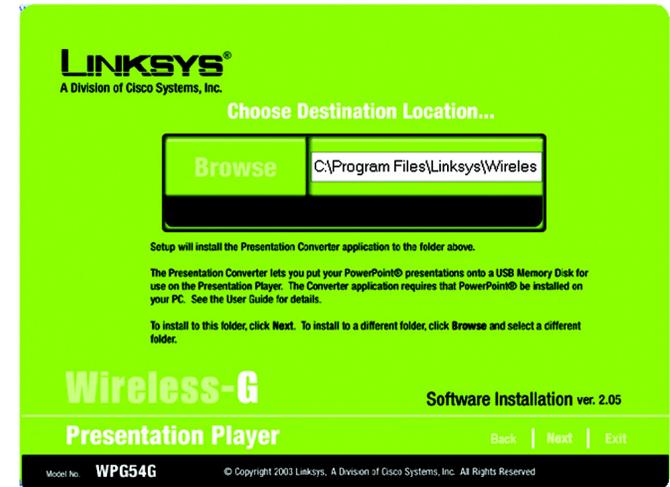
Figure 9-3: Destination Location
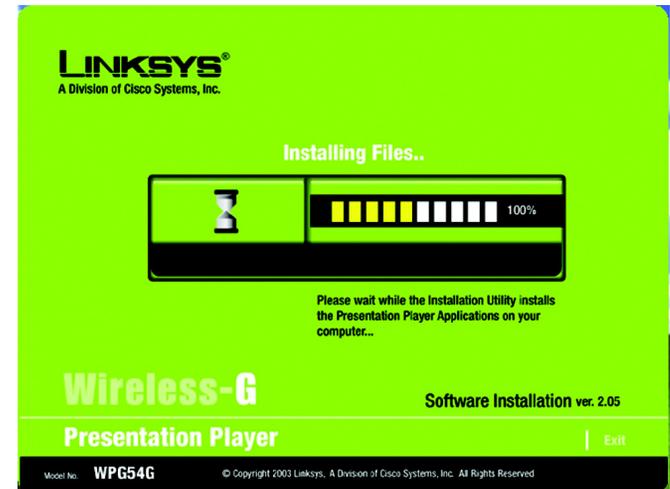
Figure 9-4: Installing Files

5. When you see the screen in Figure 9-5, the installation of the Presentation Converter application onto your computer has been completed.

    Click the **Exit** tab to exit the utility now or click the **Online Registration** tab to register your product online.

Figure 9-5: Congratulations

Conversion

First, plug your USB memory disk device into your PC.

A Linksys Presentation Converter icon will be placed on your desktop after the Presentation Converter application is installed. Click on the icon shown in Figure 9-6.
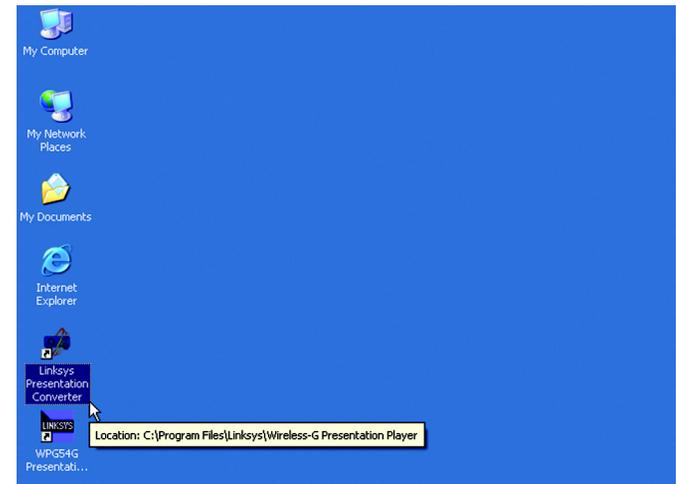
Figure 9-6: Linksys Presentation Converter Icon

The screen in Figure 9-7 will appear. Click the **Browse** button next to the *From* field to find your presentation file. After you locate your file, you may save it to a different location by clicking the **Browse** button next to the *Save to* field.

Click the **Convert** button to convert the file.

Unplug your USB disk device from the PC and plug it into the Presentation Player. Use the remote control to browse to find the presentation file.
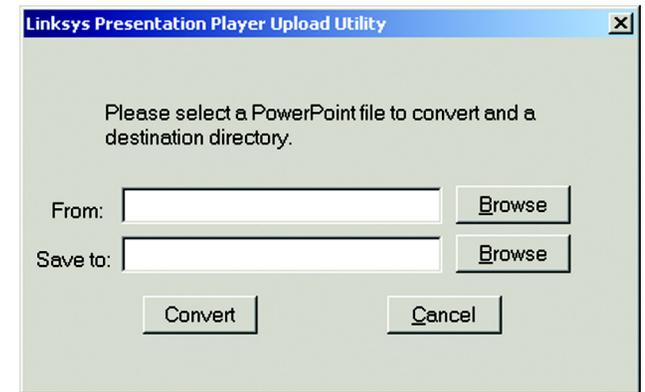
Figure 9-7: Convert your File

Appendix A: Troubleshooting

This appendix consists of two parts: "Common Problems and Solutions" and "Frequently Asked Questions." This appendix provides solutions to problems that may occur during the installation and operation of the Wireless-B Media Adapter. Read the description below to solve your problems. If you can't find an answer here, check the Linksys website at *www.linksys.com*.

Common Problems and Solutions

1. **Can I run an application from a remote computer over the wireless network?**
   This will depend on whether or not the application is designed to be used over a network. Consult the application's user guide to determine if it supports operation over a network.

2. **Can I use the Presentation Player with non-Linksys wireless equipment?**
   Yes, as long as you use it with wireless equipment that complies with the IEEE 802.11b or 802.11g standard.

3. **What IEEE 802.11b features are supported?**
   The product supports the following IEEE 802.11 functions:
   •CSMA/CA plus Acknowledge protocol
   •Multi-Channel Roaming
   •Automatic Rate Selection
   •RTS/CTS feature
   •Fragmentation
   •Power Management

4. **The Presentation Player's Control Utility cannot detect the Presentation Player.**
   Verify that the Presentation Player's power is on and all of your wireless equipment complies with the 802.11g standard and if you are connecting to the Presentation Gateway with a network cable, check the cable connection to the Presentation Player. Make sure the Presentation Player's IP Address and PC are in the same range. If you are using a wireless PC to connect, make sure that you are associated to the Presentation Player and the wireless settings match.

5. **Do I need to set my PC to Static IP or Dynamic DHCP to connect to the Presentation Player?**
   If your PC is set to Obtain an IP Address Automatically when associating/connecting your wireless PC to the wireless presentation gateway, the Presentation player will assign an IP address to your wireless PC. If your PC is set to Static IP Address, make sure that your PC's IP Address is in the same range as the Presentation Player.

6. I have a PowerPoint presentation in my USB disk that is plugged into the Presentation Player, but the file does not show up on the Player.
You will first need to convert the PowerPoint file before connecting it to the Presentation Player. Use the Converter Utility to convert the files and save them back to the USB disk. Once complete, unplug the USB disk from your PC and plug it back into the Presentation Player.

7. I'm playing a video on my PC but when watching on a projector through the Presentation Player, the video is not smooth.
The presentation player is taking snapshots of your desktop and transmitting to the screen frame by frame. Therefore, you will see many snapshots.

8. Do I need to convert the PowerPoint presentations using the Presentation Converter before uploading to the Player?
No, if you are using the Control Utility to upload your PowerPoint presentation, the control utility will automatically convert the file and upload to your Presentation Player.

9. I cannot find a list of PCs in the Remote Users section on the Presentation Player screen.
Make sure that your PC is connected to the Presentation Player and the Control Utility is installed. You will first need to take control of the Presentation Player so your PC can show up in the Remote Users list.

10. My SSID always starts with wpg54g - , can I change it to something else?
No, but you can create a unique SSID after the "wpg54g - ". Having the "wpg54g" helps users identify the unit when mulitple wireless networks are around.

11. I have more than one Presentation Player, so how can I identify which one I am connecting to?
We recommend that you assign a unique player name to each Presentation Player if you have more than one. This can be done by logging into the web user interface utility of the player and changing the player's name. If you are running the control utility and you see mulitple Presentation Players, you can identify them by the last four digits of the MAC address that is displayed after the player's name.

12. What is the default IP address on my Wireless-G Presentation Player?
The default IP address is: 192.168.1.200.

13. I want to convert my files on my USB disk, but I don't want to install the control utility.
Insert the CD and install the Converter Utility for the USB Disk instead of the Control Utility.

14. Can more than one PC take control of the Wireless-G Presentation player?
No, the Presentation Player can only be controlled by one PC at a time. If you want to switch between PCs, click the Give Control to Another User button on the Control Utility of PC 1, and then click Take Control of the Presentation Player on PC 2.

15. Does the Presentation Player work with a Macintosh operating system?

No, it only works with Windows operating systems 98SE,2000, Me, and XP. You will also need Microsoft Powerpoint to convert files.

Frequently Asked Questions

What is the IEEE 802.11g standard?

It is one of the IEEE standards for wireless networks. The 802.11g standard allows wireless networking hardware from different manufacturers to communicate, provided that the hardware complies with the 802.11g standard. The 802.11g standard states a maximum data transfer rate of 54Mbps and an operating frequency of 2.4GHz.

What is ad-hoc mode?

When a wireless network is set to ad-hoc mode, the wireless-equipped computers are configured to communicate directly with each other. The ad-hoc wireless network will not communicate with any wired network.

What is infrastructure mode?

When a wireless network is set to infrastructure mode, the wireless network is configured to communicate with a wired network through a wireless access point or router.

What is Roaming?

Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single Wireless Network Access Point. Before using the roaming function, the workstation must make sure that it is the same channel number as the Wireless Network Access Point of the dedicated coverage area.

To achieve true seamless connectivity, the wireless LAN must incorporate a number of different functions. Each node and Wireless Network Access Point, for example, must always acknowledge receipt of each message. Each node must maintain contact with the wireless network even when not actually transmitting data. Achieving these functions simultaneously requires a dynamic RF networking technology that links Wireless Network Access Points and nodes. In such a system, the user's end node undertakes a search for the best possible access to the system. First, it evaluates such factors as signal strength and quality, as well as the message load currently being carried by each Wireless Network Access Point and the distance of each Wireless Network Access Point to the wired backbone. Based on that information, the node next selects the right Wireless Network Access Point and registers its address. Communications between end node and host computer can then be transmitted up and down the backbone.

As the user moves on, the end node's RF transmitter regularly checks the system to determine whether it is in touch with the original Wireless Network Access Point or whether it should seek a new one. When a node no

longer receives acknowledgment from its original Wireless Network Access Point, it undertakes a new search. Upon finding a new Wireless Network Access Point, it then re-registers, and the communication process continues.

What is a BSS ID?

A specific Ad-hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

What is an ESS ID?

An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while maintaining a continuous connection to the wireless network stations and Wireless Network Access Points.

What is ISM band?

The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high speed wireless capabilities in the hands of users around the globe.

What is Spread Spectrum?

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade-off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

Appendix B: Wireless Security

Linksys wants to make wireless networking as safe and easy for you as possible. The current generation of Linksys products provide several network security features, but they require specific action on your part for implementation. So, keep the following in mind whenever you are setting up or using your wireless network.

Security Precautions

The following is a complete list of security precautions to take (at least steps 1 through 5 should be followed):

1. Change the default SSID.

2. Disable SSID Broadcast.

3. Change the default password for the Administrator account.

4. Enable MAC Address Filtering.

5. Change the SSID periodically.

6. Use the highest encryption algorithm possible. Use WPA if it is available. Please note that this may reduce your network performance.

7. Change the WEP encryption keys periodically.

For information on implementing these security features, refer to "Chapter 5: Configuring the Wireless-B Broadband Router."

Note: Some of these security features are available only through the network router or access point. Refer to the router or access point's documentation for more information.

Security Threats Facing Wireless Networks

Wireless networks are easy to find. Hackers know that in order to join a wireless network, wireless networking products first listen for "beacon messages". These messages can be easily decrypted and contain much of the network's information, such as the network's SSID (Service Set Identifier). Here are the steps you can take:

Change the administrator's password regularly. With every wireless networking device you use, keep in mind that network settings (SSID, WEP keys, etc.) are stored in its firmware. Your network administrator is the only person who can change network settings. If a hacker gets a hold of the administrator's password, he, too, can change those settings. So, make it harder for a hacker to get that information. Change the administrator's password regularly.

SSID. There are several things to keep in mind about the SSID:

1. Disable Broadcast

2. Make it unique

3. Change it often

Most wireless networking devices will give you the option of broadcasting the SSID. While this option may be more convenient, it allows anyone to log into your wireless network. This includes hackers. So, don't broadcast the SSID.

Wireless networking products come with a default SSID set by the factory. (The Linksys default SSID is "linksys".) Hackers know these defaults and can check these against your network. Change your SSID to something unique and not something related to your company or the networking products you use.

Change your SSID regularly so that any hackers who have gained access to your wireless network will have to start from the beginning in trying to break in.

MAC Addresses. Enable MAC Address filtering. MAC Address filtering will allow you to provide access to only those wireless nodes with certain MAC Addresses. This makes it harder for a hacker to access your network with a random MAC Address.

WEP Encryption. Wired Equivalent Privacy (WEP) is often looked upon as a cure-all for wireless security concerns. This is overstating WEP's ability. Again, this can only provide enough security to make a hacker's job more difficult.

There are several ways that WEP can be maximized:

1. Use the highest level of encryption possible

2. Use "Shared Key" authentication

3. Change your WEP key regularly

WPA. Wi-Fi Protected Access (WPA) is the newest and best available standard in Wi-Fi security. Two modes are available: Pre-Shared Key and RADIUS. Pre-Shared Key gives you a choice of two encryption methods: TKIP (Temporal Key Integrity Protocol), which utilizes a stronger encryption method and incorporates Message Integrity Code (MIC) to provide protection against hackers, and AES (Advanced Encryption System), which utilizes a symmetric 128-Bit block data encryption. RADIUS (Remote Authentication Dial-In User Service) utilizes a RADIUS server for authentication and the use of dynamic TKIP, AES, or WEP.

Important: Always remember that each device in your wireless network MUST use the same encryption method and encryption key or your wireless network will not function properly.

WPA Pre-Shared Key. If you do not have a RADIUS server, Select the type of algorithm, TKIP or AES, enter a password in the Pre-Shared key field of 8-64 characters, and enter a Group Key Renewal period time between 0 and 99,999 seconds, which instructs the Router or other device how often it should change the encryption keys.

WPA RADIUS. WPA used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.) First, select the type of WPA algorithm, **TKIP** or **AES**. Enter the RADIUS server's IP Address and port number, along with a key shared between the device and the server. Last, enter a Group Key Renewal period, which instructs the device how often it should change the encryption keys.

RADIUS. WEP used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.) First, enter the RADIUS server's IP Address and port number, along with a key shared between the device and the server. Then, select a WEP key and a level of WEP encryption, and either generate a WEP key through the Passphrase or enter the WEP key manually.

Implementing encryption may have a negative impact on your network's performance, but if you are transmitting sensitive data over your network, encryption should be used.

These security recommendations should help keep your mind at ease while you are enjoying the most flexible and convenient technology Linksys has to offer.

Appendix C: Upgrading Firmware

The Presentation Player functions with the use of firmware, which is the programming written in the unit's internal memory. It is this firmware that enables the Presentation Player to function and makes it easy to use.

Occasionally, this firmware will be upgraded, which could increase the Presentation Player's stability or make it easier to use. New versions of the firmware can be found on the Linksys web site at www.linksys.com.

The Presentation Player's firmware is upgraded through the Web-Utility's Administration tab. Follow these instructions:

1. Download the firmware from Linksys's website at **www.linksys.com**.

2. Click the Web-Utility's Administration tab, and the Setup screen, shown in Figure C-1, will appear.

3. Enter the location of the firmware's file or click the **Browse** button to find the file.

4. Then, click the **Upgrade** button to upgrade the firmware.
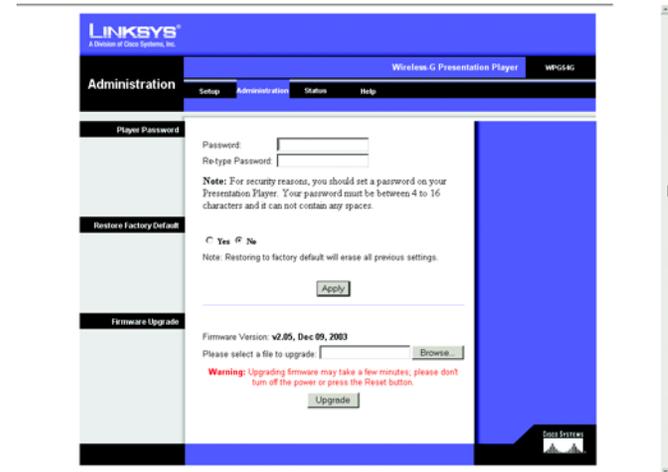
Figure C-1: Upgrade Firmware

Appendix D: Windows Help

All wireless products require Microsoft Windows. Windows is the most used operating system in the world and comes with many features that help make networking easier. These features can be accessed through Windows Help and are described in this appendix.

TCP/IP

Before a computer can communicate with the Presentation Player, TCP/IP must be enabled. TCP/IP is a set of instructions, or protocol, all PCs follow to communicate over a network. This is true for wireless networks as well. Your PCs will not be able to utilize wireless networking without having TCP/IP enabled. Windows Help provides complete instructions on enabling TCP/IP.

Shared Resources

If you wish to share printers, folder, or files over your network, Windows Help provides complete instructions on utilizing shared resources.

Network Neighborhood/My Network Places

Other PCs on your network will appear under Network Neighborhood or My Network Places (depending upon the version of Windows you're running). Windows Help provides complete instructions on adding PCs to your network.

Appendix E: Glossary

802.11a - An IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps and an operating frequency of 5GHz.

802.11b - An IEEE wireless networking standard that specifies a maximum data transfer rate of 11Mbps and an operating frequency of 2.4GHz.

(802.11g - An IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps, an operating frequency of 2.4GHz, and backward compatibility with 802.11b devices.

Access Point - Device that allows wireless-equipped computers and other devices to communicate with a wired network. Also used to expand the range of a wireless network.

Adapter - This is a device that adds network functionality to your PC.

Ad-hoc - A group of wireless devices communicating directly with each other (peer-to-peer) without the use of an access point.

Backbone - The part of a network that connects most of the systems and networks together, and handles the most data.

Bandwidth - The transmission capacity of a given device or network.

Beacon Interval - The frequency interval of the beacon, which is a packet broadcast by a router to synchronize a wireless network.

Bit - A binary digit.

Boot - To start a device and cause it to start executing instructions.

Bridge - A device that connects two different kinds of local networks, such as a wireless network to a wired Ethernet network.

Broadband - An always-on, fast Internet connection.

Browser - A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web.

Buffer - A block of memory that temporarily holds data to be worked on later when a device is currently too busy to accept the data.

Cable Modem - A device that connects a computer to the cable television network, which in turn connects to the Internet.

CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance) - A method of data transfer that is used to prevent data loss in a network.

CTS (Clear To Send) - A signal sent by a device to indicate that it is ready to receive data.

Daisy Chain - A method used to connect devices in a series, one after the other.

Database - A collection of data that is organized so that its contents can easily be accessed, managed, and updated.

DDNS (Dynamic Domain Name System) - The capability of having a website, FTP, or e-mail server-with a dynamic IP address-use a fixed domain name.

Default Gateway - A device that forwards Internet traffic from your local area network.

DHCP (Dynamic Host Configuration Protocol) - A protocol that lets one device on a local network, known as a DHCP server, assign temporary IP addresses to the other network devices, typically computers.

DMZ (Demilitarized Zone) - Removes the Router's firewall protection from one PC, allowing it to be "seen" from the Internet.

DNS (Domain Name Server) - The IP address of your ISP's server, which translates the names of websites into IP addresses.

Domain - A specific name for a network of computers.

Download - To receive a file transmitted over a network.

DSL (Digital Subscriber Line) - An always-on broadband connection over traditional phone lines.

DSSS (Direct-Sequence Spread-Spectrum) - A type of radio transmission technology that includes a redundant bit pattern to lessen the probability of data lost during transmission. Used in 802.11b networking.

DTIM (Delivery Traffic Indication Message) - A message included in data packets that can increase wireless efficiency.

Dynamic IP Address - A temporary IP address assigned by a DHCP server.

Encryption - Encoding data to prevent it from being read by unauthorized people.

Ethernet - An IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium.

Finger - A program that tells you the name associated with an e-mail address.

Firewall - Security measures that protect the resources of a local network from intruders.

Firmware - 1. In network devices, the programming that runs the device. 2. Programming loaded into read-only memory (ROM) or programmable read-only memory (PROM) that cannot be altered by end-users.

Fragmentation - Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

FTP (File Transfer Protocol) - A standard protocol for sending files between computers over a TCP/IP network and the Internet.

Full Duplex - The ability of a networking device to receive and transmit data simultaneously.

Gateway - A system that interconnects networks.

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - The physical aspect of computers, telecommunications, and other information technology devices.

HTTP (HyperText Transport Protocol) - The communications protocol used to connect to servers on the World Wide Web.

IEEE (The Institute of Electrical and Electronics Engineers) - An independent institute that develops networking standards.

Infrastructure - Currently installed computing and networking equipment.

Infrastructure Mode - Configuration in which a wireless network is bridged to a wired network via an access point.

IP (Internet Protocol) - A protocol used to send data over a network.

IP Address - The address used to identify a computer or device on a network.

IPCONFIG - A Windows 2000 and XP utility that displays the IP address for a particular networking device.

IPSec (Internet Protocol Security) - A VPN protocol used to implement secure exchange of packets at the IP layer.

ISM band - Radio band used in wireless networking transmissions.

ISP (Internet Service Provider) - A company that provides access to the Internet.

LAN (Local Area Network) - The computers and networking products that make up the network in your home or office.

MAC (Media Access Control) Address - The unique address that a manufacturer assigns to each networking device.

Mbps (Megabits Per Second) - One million bits per second; a unit of measurement for data transmission.

Multicasting - Sending data to a group of destinations at once.

NAT (Network Address Translation) - NAT technology translates IP addresses of a local area network to a different IP address for the Internet.

Network - A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.

NNTP (Network News Transfer Protocol) - The protocol used to connect to Usenet groups on the Internet.

Node - A network junction or connection point, typically a computer or work station.

OFDM (Orthogonal Frequency Division Multiplexing) - A type of modulation technology that separates the data stream into a number of lower-speed data streams, which are then transmitted in parallel. Used in 802.11a, 802.11g, and powerline networking.

Packet - A unit of data sent over a network.

Passphrase - Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for Linksys products.

Ping (Packet INternet Groper) - An Internet utility used to determine whether a particular IP address is online.

POP3 (Post Office Protocol 3) - A standard protocol used to retrieve e-mail stored on a mail server.

Port - 1. The connection point on a computer or networking device used for plugging in a cable or an adapter. 2. The virtual connection point through which a computer uses a specific application on a server.

PPPoE (Point to Point Protocol over Ethernet) - A type of broadband connection that provides authentication (username and password) in addition to data transport.

PPTP (Point-to-Point Tunneling Protocol) - A VPN protocol that allows the Point to Point Protocol (PPP) to be tunneled through an IP network. This protocol is also used as a type of broadband connection in Europe.

Preamble - Part of the wireless signal that synchronizes network traffic.

RJ-45 (Registered Jack-45) - An Ethernet connector that holds up to eight wires.

Roaming - The ability to take a wireless device from one access point's range to another without losing the connection.

Router - A networking device that connects multiple networks together, such as a local network and the Internet.

RTS (Request To Send) - A packet sent when a computer has data to transmit. The computer will wait for a CTS (Clear To Send) message before sending data.

Server - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (Simple Mail Transfer Protocol) - The standard e-mail protocol on the Internet.

SNMP (Simple Network Management Protocol) - A widely used network monitoring and control protocol.

Software - Instructions for the computer. A series of instructions that performs a particular task is called a "program".

Spread Spectrum - Wideband radio frequency technique used for more reliable and secure data transmission.

SSID (Service Set IDentifier) - Your wireless network's name.

Static IP Address - A fixed address assigned to a computer or device that is connected to a network.

Static Routing - Forwarding data in a network via a fixed path.

Subnet Mask - An address code that determines the size of the network.

Switch - 1. Device that is the central point of connection for computers and other devices in a network, so data can be shared at full transmission speeds. 2. A device for making, breaking, or changing the connections in an electrical circuit.

TCP/IP (Transmission Control Protocol/Internet Protocol) - A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

Telnet - A user command and TCP/IP protocol used for accessing remote PCs.

TFTP (Trivial File Transfer Protocol) - A version of the TCP/IP FTP protocol that uses UDP and has no directory or password capability.

Throughput - The amount of data moved successfully from one node to another in a given time period.

Topology - The physical layout of a network.

TX Rate - Transmission Rate.

UDP (User Datagram Protocol) - A network protocol for transmitting data that does not require acknowledgement from the recipient of the data that is sent.

Upgrade - To replace existing software or firmware with a newer version.

Upload - To transmit a file over a network.

URL (Uniform Resource Locator) - The address of a file located on the Internet.

VPN (Virtual Private Network) - A security measure to protect data as it leaves one network and goes to another over the Internet.

WAN (Wide Area Network) - The Internet.

WEP (Wired Equivalent Privacy) - A method of encrypting data transmitted on a wireless network for greater security.

WINIPCFG - A Windows 98 and Millennium utility that displays the IP address for a particular networking device.

WLAN (Wireless Local Area Network) - A group of computers and associated devices that communicate with each other wirelessly.

Appendix F: Specifications

Standards	IEEE 802.11g, IEEE 802.3, IEEE 802.3u, USB 1.1
Ports	15-pin female VGA connector, RJ-45 10/100 port, SMA antenna connector, IRD, USB, Power
Buttons	Reset, Power
Cabling Type	Standard VGA, Category 5 (or better) network cable
Data Rate	Up to 54Mbps
LEDs	Power, Wireless-G, LAN, USB
Dimensions (W x H x D)	7.32" x 6.89" x 1.89" (186 mm x 175 mm x 48 mm)
Unit Weight	19.9 oz. (0,56 kg)
Power	External, 5V DC, 2.5A
Certifications	FCC 15B, FCC 15C
Operating Temp.	0ºC to 40ºC (32ºF to 104ºF)
Storage Temp.	-20ºC to 70ºC (-4ºF to 158ºF)
Operating Humidity	10% to 85% Non-Condensing
Storage Humidity	5% to 90% Non-Condensing
Warranty	3-Year Limited

Appendix G: Warranty Information

LIMITED WARRANTY

Linksys warrants to You that, for a period of three years (the "Warranty Period"), your Linksys Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys' entire liability under this warranty will be for Linksys at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to You. This warranty gives You specific legal rights, and You may also have other rights which vary by jurisdiction.

This warranty does not apply if the Product (a) has been altered, except by Linksys, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident. In addition, due to the continual development of new techniques for intruding upon and attacking networks, Linksys does not warrant that the Product will be free of vulnerability to intrusion or attack.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL LINKSYS BE LIABLE FOR ANY LOST DATA, REVENUE OR PROFIT, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, REGARDLESS OF THE THEORY OF LIABILITY (INCLUDING NEGLIGENCE), ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT (INCLUDING ANY SOFTWARE), EVEN IF LINKSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL LINKSYS' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT. The foregoing limitations will apply even if any warranty or remedy provided under this Agreement fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to You.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

Appendix H: Regulatory Information

FCC STATEMENT

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna

Increase the separation between the equipment or devices

Connect the equipment to an outlet other than the receiver's

Consult a dealer or an experienced radio/TV technician for assistance

FCC Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

INDUSTRY CANADA (CANADA)

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations.

EC DECLARATION OF CONFORMITY (EUROPE)

Linksys declares that the Wireless-G ADSL Gateway conforms to the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC:

EN 301 489-1, 301 489-17 General EMC requirements for Radio equipment.

47

EN 609 50 Safety

EN 300-328-1, EN 300-328-2 Technical requirements for Radio equipment.

Caution: This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. Contact local Authority for procedure to follow.

Note: Combinations of power levels and antennas resulting in a radiated power level of above 100 mW equivalent isotropic radiated power (EIRP) are considered as not compliant with the above mentioned directive and are not allowed for use within the European community and countries that have adopted the European R&TTE directive 1999/5/EC.

For more details on legal combinations of power levels and antennas, contact Linksys Corporate Compliance.

Linksys vakuuttaa täten että Wireless-G ADSL Gateway tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien näiden direktiivien muiden ehtojen mukainen.

Linksys Group déclare la Passerelle ADSL sans fil-G est conforme aux conditions essentielles et aux dispositions relatives à la directive 1999/5/EC.

Belgique:

Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.

France:

2.4 GHz Bande : les canaux 10, 11, 12, 13 (2457, 2462, 2467, et 2472 MHz respectivement) sont complétement libres d'utilisation en France (en utilisation intérieur). Pour ce qui est des autres canaux, ils peuvent être soumis à autorisation selon le départment. L'utilisation en extérieur est soumis à autorisation préalable et très restreint.

Vous pouvez contacter l'Autorité de Régulation des Télécommunications (http://www.art-telecom.fr) pour de plus amples renseignements.

Appendix I: Contact Information

Need to contact Linksys?
Visit us online for information on the latest products and updates
to your existing products at: http://www.linksys.com or
                                                                                 ftp.linksys.com

Can't find information about a product you want to buy
on the web? Do you want to know more about networking
with Linksys products? Give our advice line a call at: 800-546-5797 (LINKSYS)
Or fax your request in to: 949-823-3002

If you experience problems with any Linksys product,
you can call us at: 800-326-7114
Don't wish to call? You can e-mail us at: support@linksys.com

If any Linksys product proves defective during its warranty period,
you can call the Linksys Return Merchandise Authorization
department for obtaining a Return Authorization Number at: 949-823-3000
(Details on Warranty and RMA issues can be found in the Warranty
Information section in this Guide.)